

美国 SPEX 元素形态标液  
Analytical Standards for Single & Dual Speciation Analysis



单形态标液

Single Speciation Standards

品名	英文	基体	浓度	体积	编号
三价砷	ARSENIC <sup>+3</sup>	2% HCl	1000µg/mL	125mL	SPEC-AS3
三价砷	ARSENIC <sup>+3</sup>	2% HCl	1000µg/mL	30mL	SPEC-AS3M
五价砷	ARSENIC <sup>+5</sup>	H <sub>2</sub> O	1000µg/mL	125mL	SPEC-AS5
五价砷	ARSENIC <sup>+5</sup>	H <sub>2</sub> O	1000µg/mL	30mL	SPEC-AS5M
三价铬	CHROMIUM <sup>+3</sup>	2% HNO <sub>3</sub>	1000µg/mL	125mL	SPEC-CR3
三价铬	CHROMIUM <sup>+3</sup>	2% HNO <sub>3</sub>	1000µg/mL	30mL	SPEC-CR3M
六价铬	CHROMIUM <sup>+6</sup>	H <sub>2</sub> O	1000µg/mL	125mL	SPEC-CR6
六价铬	CHROMIUM <sup>+6</sup>	H <sub>2</sub> O	1000µg/mL	30mL	SPEC-CR6M
四价硒	SELENIUM <sup>+4</sup>	2% HNO <sub>3</sub>	1000µg/mL	125mL	SPEC-SE4
四价硒	SELENIUM <sup>+4</sup>	2% HNO <sub>3</sub>	1000µg/mL	30mL	SPEC-SE4M
六价硒	SELENIUM <sup>+6</sup>	H <sub>2</sub> O	1000µg/mL	125mL	SPEC-SE6
六价硒	SELENIUM <sup>+6</sup>	H <sub>2</sub> O	1000µg/mL	30mL	SPEC-SE6M

有机砷形态标液

Organic Arsenic Speciation Standards

品名	英文	基体	浓度	体积	编号
二甲基砷酸钠盐	DIMETHYLARSINIC ACID SODIUM SALT	H <sub>2</sub> O	10µg/mL As	30mL	SPEC-AS-DMA
一甲基砷酸钠六水合物	DISODIUM METHYLARSONATE HEXAHYDRATE	H <sub>2</sub> O	10µg/mL As	30mL	SPEC-AS-MMA

双形态标液

Dual Speciation Standards

品名	英文	基体	浓度	体积	编号
三价砷五价砷双形态	Dual Arsenic (+3,+5) Speciation Standard	H <sub>2</sub> O/tr.HCL	10µg/mL As+3 10µg/mL As+5	30mL	SPEC-DUAL-AS
四价硒六价硒双形态	Dual Selenium (+4,+6) Speciation Standard	H <sub>2</sub> O/tr.HNO <sub>3</sub>	10µg/mL Se+4 10µg/mL Se+6	30mL	SPEC-DUAL-SE
三价铬六价铬双形态	Dual Chromium (+3,+6) Speciation Standard	H <sub>2</sub> O	10µg/mL Cr+4 10µg/mL Cr+6	30mL	SPEC-DUAL-CR

## 砷双形态标液证书示例

### Example LC-ICP-MS Certificate

#### SPEXertificate®

##### Certificate of Reference Material

**Catalog Number:** SPEC-DUAL-AS **Lot No. Sample**

**Description:** 20 µg/mL Dual Inorganic Arsenic (III, V) Speciation Standard

**Matrix:** H<sub>2</sub>O/Tr. HCl

This certified reference material, CRM, is intended primarily for use as a quality control standard for inorganic spectroscopic instrumentation such as LC-ICP-MS. It can be employed in validating analytical methods for the determination of relevant species.

**Certified Value [As (total)]:** 20.0 ± 0.4 µg/mL

**Certified Value is Traceable to:** 3103a\*

\* - Indicates NIST SRM      t - Indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Arsenic (III) oxide (As<sub>2</sub>O<sub>3</sub>, Lot# 08831RAS) and Arsenic (V) oxide (As<sub>2</sub>O<sub>5</sub>, Lot# 10111D). The certified value for overall Arsenic is obtained by ICP measurement and calculation method. The percentage of As (III) and As (V) in this speciation standard is obtained by LC-ICP-MS.

Refer to side 2 for details of measurement uncertainties.

**Uncertified Properties:** Density: 0.998 g/mL @ 20°C

**Instrumental Analysis by ICP Spectrometer [As (total)]:** 20.0 ± 0.4 µg/mL

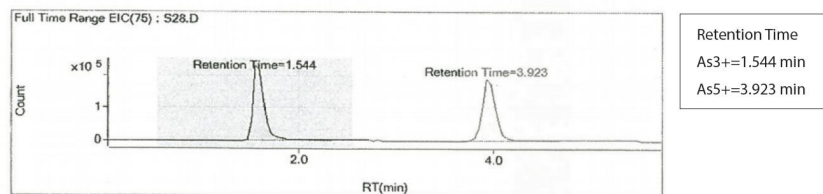
**Calculated Result [As (total)]:** 20.0 ± 0.4 µg/mL

#### Calculation Method:

This value was derived from dilution calculations of gravimetric analysis result of Arsenic concentrates. The concentrates were analyzed by both ICP measurement and wet assay traceable to NIST SRM3103a.

**Instrumental Analysis by LC-ICP-MS Spectrometer** [As<sub>3</sub>+]: 49.9% ± 5%  
[As<sub>5</sub>+]: 50.1% ± 5%

#### Chromatogram



**Note:** The above chromatograph was obtained by analyzing a diluted standard at a concentration of 25 µg/L of each species. An injection volume of 25 µL was used. The final result of each species was determined against a calibration curve of each individual species using peak area.

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